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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/607,798

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Valentine J. Rhodes

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EXAMINER

QURESHI, AFSAR M

ART UNIT

PAPER NUMBER

2416

MAIL DATE

DELIVERY MODE

01/12/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/607,798	<b>Applicant(s)</b> RHODES, VALENTINE J.	
	<b>Examiner</b> AFSAR M. QURESHI	<b>Art Unit</b> 2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Response to Amendment***

1. This Office Action is responsive to Amendment/REMARKS received on 10/14/2008.

In light of amendment:

rejection of claims 1-13 under 35 USC §101 is removed;

rejection of claims 1-13, 15 and 15 under 35 USC § 112 is now removed.

***Response to Arguments***

2. Applicant's arguments filed on 10/14/2008, with respect to cited reference Kenschak (EP 1065855) have been fully considered but they are not persuasive. Examiner maintains that Kenschak reference anticipates all the limitations of original claims, prior to amendments. Applicant added subject matter such as puncturing the subcarriers and argued that the cited reference does not disclose the added subject matter. Applicant further argued that Kenschak does not teach the added subject matter of puncturing one or more subcarriers.

Upon further search, however, Examiner found another reference, in the same field of endeavor that teaches the added subject matter of 'puncturing one or more subcarriers prior to transmission.

As to claims 14 and 16, Applicant requested that Examiner provide support/evidence for the Office Notice. Examiner notes that the detailed argument presented in the rejection of said claims were based on inherency obvious to one of skill

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in the pertinent art. In the following rejection Examiner provides prior art supporting the Office Notice.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-13, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over (Sony International) Konschak et al. ('Konschak' hereinafter) in view of Chen et al. (US 6,768,778) ('Chen' hereinafter).

As to claim 1, Konschak discloses a first apparatus 9 (fig. 4), having a processor (estimating means 16) extracting a channel profile and adapted to adjust a guard interval of a packet prior to transmission (see [0020]-[0021],[0024]-[0026]).

Konschak fails to disclose puncturing one or more subcarriers, as claimed herein.

Chen teaches selecting and optimally puncturing subcarriers (see col. 14, lines 20-55).

Therefore it would have been obvious to one of ordinary skill in the pertinent art, at the time of invention, to be able to utilize the teachings of Chen to puncture the subcarriers utilizing the knowledge of extracted channel profile in order to minimize the

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inter-symbol interference and to increase the overall data throughput, as desired by Konschak (as set forth in paragraph “(57)” page 4).

As to claims 2-5 and 9. Konschak discloses guard interval is adjusted by appending a cyclic prefix, cyclic suffix and both to the packet that dynamically changes with updated channel delay spread knowledge wherein the system is time division duplex OFDM system (see [0018] and [0027],[0027]).

As to claims 6, 7 and 10-13. In addition to limitations discussed in the rejection of claim 1 above, Konschak also discloses that target node (fig. 5) determines the guard interval from a source transmission to set the interval and source node (fig. 4) determines the guard interval from a target transmission, to set the guard interval. (see [0011],[0030]). As to claim 8., Konschak discloses steps of monitoring and setting up the guard interval and removing ISI as claimed herein (see [0014]).

Claims 17 and 18. In addition to puncturing one or more subcarriers, as already discussed, with other limitations, in the rejection of claims 1, 5 and 8 above, the limitation, ‘measuring channel delays from multipath reflections in OFDM to form channel knowledge’, is taught by Konschak. Konschak discloses transmitting the recurrent channel delay spread knowledge updates to inform other nodes of the guard interval and determining which of the source or target nodes has the channel delay spread knowledge used to change the guard (see [0033]).

. Therefore it would have been obvious to one of ordinary skill in the pertinent art, at the time of invention, to be able to modify Konschak and utilize the channel

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knowledge, to puncture subcarriers prior to transmission since the well known puncturing technique exhibit good performance wherein devices be able to coexist in the same WLAN area without significant interference or interruptions.

5. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined invention of Kenschak and Chen as applied to claim 1 above, and further in view of Park et al. (US 6,470,030).

As in claim 14, In addition to limitations discussed in the rejection of claim 1 above, Kenschak/Chen also disclose a preset table containing delay values and corresponding length values for the cyclic extensions.

However, Kenschak/Chen do not specifically disclose a static RAM coupled to the processor.

Park et al. disclose a basic structure of the OFDM known in the prior art. Park et al. disclose that in a basic structure of the OFDM receiver system a DSP chip and a field programmable gate array (FPGA) chip is programmed to sequentially perform various kinds of synchronization, equalization, demapping and disinterleaving wherein the external hardware inherently includes a memory device such as SRAM table (see col. 3, lines 33-42).

As to claim 15 Kenschak discloses steps of monitoring and setting up the guard interval and removing ISI as claimed herein (see [0014]).

As to claim 16, Kenschak also discloses other OFDM devices to transmit guard interval information (see [0026], figs. 4 and 5).

Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to be able to utilize SRAM, as a basic structure of OFDM receiver, since SRAM, a semiconductor memory, is known to hold data without external refresh for as long as power is supplied to the circuit. An advantage of using SRAM is that it is faster and more reliable with a shorter cycle time

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AFSAR M. QURESHI whose telephone number is

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(571)272-3178. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (571) 272 7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Afsar M Qureshi/  
Primary Examiner  
Art Unit 2416

1/8/2009